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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/585,163	06/01/00	MORRIS	R 2614-00029

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GM02/0808

EXAMINER

EDGAR, R

ART UNIT	PAPER NUMBER
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3745

DATE MAILED:

08/08/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/585,163	MORRIS ET AL.	
	Examiner	Art Unit	
	Richard A Edgar	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____ .
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____ .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- | | | |
|---|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | / | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. | | 20) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

On page 3, line 7, "long life assembly pump assembly" should be --long life pump assembly--.

On page 4, line 11, "extended" should be --extends--; and "of the impeller" should be --from the hub--.

On page 4, line 14, "extends" should be --extend--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "said cavity" in line 5.

Claim 13 recites the limitation "said outlet passageway" in lines 18, 20 and 21.

There is insufficient antecedent basis for these limitations in their respective claims.

Regarding claims 14 and 15, their dependence on indefinite claim 13, renders the claims themselves indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-4, 8-9, 11, and, as far as claim 13 is definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosch et al. (4,936,744) in view of Ozawa (5,224,821). Dosch et al. disclose in Fig. 1 a pump impeller (26) comprising a hub (34) secured to a drive shaft (28) located within a fluid chamber (14), wherein the hub has an outer peripheral wall extending axially and radially to a flat bottom wall (36b), see figure 4. Pump vanes (40) are spaced circumferentially around the impeller hub and extend radially outwardly from bottom wall (See Fig. 3). As shown in figure 4, a shroud (100) is secured to the upper and radially outer edge of vane (40) and overlays a radially outer portion of the hub, forming an entrance portion for the working fluid to enter the impeller and pass through the passageways between adjacent vanes. A plurality of flow openings (38) located on the hub are disposed radially about the shaft axis which are configured to establish a diversion of a portion of the fluid from the flow passageway to the back surface of the hub (36b). Furthermore, the impeller comprises rearwardly extending vanes adapted to project the fluid from the back surface of the hub into an annular chamber (30) formed in a rear wall (32) of a pumping chamber (column 3, lines 15-19). Dosch et al. does not disclose the pump being used for thermal applications in

an internal combustion engine, the shaft comprising a seal/bearing unit, or the geometry of the vanes.

Ozawa discloses in column 1, lines 7-9, a water pump used to circulate water for the purpose of cooling an engine. Ozawa teaches in Fig. 1 an impeller (4) fixed to a rotating shaft (3) supported by a bearing (2) and an associated mechanical seal (5) for the purpose of preventing the fluid from destroying the bearing. The seal unit is located within the pump housing (1) and exposed to the pumping chamber (11) on the rearward side of the impeller. The vanes (4a) are fixed to the concave side of the impeller hub and extend radially outward and axially to an inclined portion extending radially outwardly and downwardly (see Fig. 1). A water passageway is disposed between the housing sidewall and the axially outer surface of the vanes for the purpose of permitting water to pass from the pump housing to the outer passageway of the housing (11).

Regarding claims 1 and 3, since Dosch et al. and Ozawa are both centrifugal impeller pumps, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the pump of Dosch et al., based on the teachings of Ozawa, to include a bearing/seal unit fixed to the shaft for the purpose of rotating the impeller and preventing the working fluid from destroying the bearing.

Concerning claims 4, 8 and 9, since Dosch et al. and Ozawa are both centrifugal impeller pumps, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the pump of Dosch et al., based on the teachings of Ozawa, to be a pump used in thermal applications of an internal combustion engine for the purpose of cooling engine components and include a

bearing/seal unit fixed to the shaft for the purpose of rotating the impeller and preventing fluid from destroying the bearing.

With respect to claims 11 and 13, since Dosch et al. and Ozawa are both centrifugal impeller pumps, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the pump of Dosch et al., based on the teachings of Ozawa, to be a pump used in thermal applications of an internal combustion engine for the purpose of cooling engine components, also including a bearing/seal unit fixed to the shaft for the purpose of rotating the impeller and preventing fluid from destroying the bearing, finally shaping the vanes corresponding to the surrounding housing for the purpose of permitting a flow channel for the fluid to pass therein.

Claims 2, 5-6, 12 and as far as claim 15 is definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosch et al. in view of Ozawa as applied to claim 4 above, and further in view of Giberson (5,573,374). Dosch et al., as modified, teach all of the claimed subject matter except for the hub, shroud, and vanes being made from a single, plastic molded part.

Giberson discloses a monolithic shrouded impeller where the hub (3), vanes (9), and shroud (25) are integral and constructed from plastic (column 4, lines 44-48) for the purpose of simplifying manufacturing.

Since the modified Dosch et al. and Giberson are both impellers, it would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to modify the improved impeller of Dosch et al. based on the teachings of Giberson, to be a monolithic impeller comprising a hub, shroud and vanes, molded from plastic for the purpose of simplifying the impeller manufacture.

Claim 7, and as far as claim 10 is definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosch et al. in view of Ozawa as applied to claim 4 above, and further in view of Freeman (4,891,876). The modified Dosch et al. teaching has all of the claimed subject matter except for the geometry of the impeller hub.

Freeman teaches in Figs. 1 and 2 the geometry of an impeller hub (10) having a first relatively constant diameter radially inner portion connected by a concave radial planer portion connected to a convex outer bottom portion terminating in a flat bottom wall of hub entity for the purpose of supplying a flow to the bottom wall portion of the hub.

Since the modified Dosch et al. and Freeman are both impellers, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the improved impeller of Dosch et al., based on the teachings of Freeman, to be an impeller with a hub geometry configuration adapted to promote a working fluid flow to the bottom wall portion of the hub for the purpose of introducing the flow to the cavity where heat transfer will occur at the bearing/seal unit.

Allowable Subject Matter

Claim 14, as far as it is definite, is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Edgar whose telephone number is (703) 305-0050. The examiner can normally be reached on Monday-Friday 7:00-3:30.

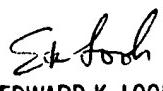
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (703) 308-1044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3588 for regular communications and (703) 305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Richard A Edgar
Examiner
Art Unit 3745

RAE
August 6, 2001



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
GROUP 3700
8/7/01